WHAT IS CLAIMED IS:

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1. A continuous process for preparing a thermoformed article, the process comprising:

extruding a thermoplastic layer through an extrusion die to form an extrudate in a substantially non-oriented state;

contacting at least a portion of said extrudate with at least one mold surface having a stripper plate adjacent thereto, for a time sufficient to form said thermoplastic article, while controlling the temperature of said mold surface to maintain the extrudate in a thermoformable state, wherein at least a portion of said mold surface is maintained at a first temperature, and while controlling the temperature of said stripper plate to maintain said stripper plate at a second temperature, wherein said second temperature is not equal to said first temperature.

2. The process of claim 1 wherein the difference between said first temperature and said second temperature is from about 1°C to about 100°C.

3. The process of claim 2 wherein the difference in temperature is from about 5°C to about 68°C.

4. The process of claim 3 wherein said second temperature is lower than said first temperature.

5. The process of claim 1 further comprising displacing the mold surface relative to the stripper plate over a distance sufficient to separate the thermoformed article from the mold surface.

6. A continuous process for preparing a thermoformed article, the process comprising:

feeding a mixture of thermoplastic materials into an extruder, wherein the mixture comprises at least one virgin alkylene terephthalate or naphthalate

polyester and at least one reprocessed alkylene terephthalate or naphthalate polyester, at a ratio of virgin polyester to reprocessed polyester of from about 1:4 to about 4:1 by weight;

extruding the mixture of thermoplastic materials through an extrusion die to form an extrudate in a substantially non-oriented state;

contacting at least a portion of said extrudate with at least one mold surface having a stripper plate adjacent thereto, for a time sufficient to form said thermoplastic article, while controlling the temperature of said mold surface to maintain the extrudate in a thermoformable state, wherein at least a portion of said mold surface is maintained at a first temperature, and while controlling the temperature of said stripper plate to maintain said stripper plate at a second temperature, wherein said second temperature is not equal to said first temperature.

7. The process of claim 6 wherein said virgin alkylene terephthalate or naphthalate polyester has an initial intrinsic viscosity of less than about 0.95.

8. The process of claim 7 wherein said initial intrinsic viscosity is less than about 0.90.

9. The process of claim 8 wherein said initial intrinsic viscosity is less than about 0.85.

10. The process of claim 9 wherein said initial intrinsic viscosity is less than about 0.80.

11. The process of claim 6 wherein said virgin polyester comprises one or more optionally branched homo-polymers, co-polymers, or a mixture thereof.

12. The process of claim 6 wherein said recycled polyester comprises one or more optionally branched homo-polymers, co-polymers, or a mixture thereof.

13. The process of claim 6 wherein said virgin polyester and said recycled polyester are independently selected from the group consisting of PET, PEN, PETG, PCT, PCTA, PBT, PTT, and mixtures thereof.

14. A continuous thermoforming process for preparing a multi-layered article, the process comprising:

co-extruding at least two distinct thermoplastic layers through an extrusion die to form a co-extrudate in a substantially non-oriented state;

contacting at least a portion of said co-extrudate with at least one mold surface having a stripper plate adjacent thereto for a time sufficient to form said multi-layered article, while controlling the temperature of said mold surface to maintain the co-extrudate in a thermoformable state, wherein at least a portion of said mold surface is maintained at a first temperature, and while controlling the temperature of said stripper plate to maintain the stripper plate at a second temperature, wherein said second temperature is not equal to said first temperature.

15. The process of claim 14 wherein the difference between said first temperature and said second temperature is from about 1°C to about 100°C.

16. The process of claim 15 wherein the difference between said first temperature and said second temperature is from about 5°C to about 68°C.

17. The process of claim 16 wherein said second temperature is lower than said first temperature.

18. The process of claim 14 wherein said co-extrudate comprises a polar thermoplastic layer, an intermediate tie layer, and a non-polar thermoplastic layer.

19. The process of claim 18 wherein said polar thermoplastic layer comprises polyethylene terephthalate and wherein said non-polar thermoplastic layer

comprises high density polyethylene, low density polyethylene, linear low density polyethylene, or a mixture thereof.

20. The process of claim 18 wherein said tie layer is selected from the group consisting of ethylene/glycidyl methacrylate co-polymer, ethylene/maleic anhydride co-polymer, ethylene/glycidyl methacrylate/methacrylate ter-polymer, ethylene/glycidyl methacrylate/ethylacrylate ter-polymer, ethylene/glycidyl methacrylate/butylacrylate ter-polymer, ethylene/glycidyl methacrylate/ ethylhexylacrylate ter-polymer, ethylene/maleic anhydride/methacrylate ter-polymer, ethylene/maleic anhydride/ethylacrylate ter-polymer, ethylene/maleic anhydride/butylacrylate ter-polymer, ethylene/ maleic anhydride/ ethylhexylacrylate ter-polymer, and mixtures thereof.

21. A thermoplastic polymeric composition comprising an alkylene terephthalate or naphthalate bulk polymer; an effective amount of an additive comprising a substantially amorphous co-polymer of ethylene and an acrylate; and an effective amount of a compatibilizer/emulsifier/surfactant (CES) comprising a grafted or backbone co-polymer or ter-polymer of ethylene and a glycidyl acrylate, maleic anhydride, or mixture thereof, and optionally an acrylate selected from the group consisting of methacrylate, ethylacrylate, propylacrylate, butylacrylate, ethylhexylacrylate, and mixtures thereof;

wherein said thermoplastic composition, when heat set at a thickness of about 15 to 25 mils, has a Dynatup Impact toughness rating at 70°F (21°C) of at least 125 and Dynatup Impact toughness rating at –20°F (-29°C) of at least 120.

22. The composition of claim 21 wherein said Dynatup Impact toughness rating at 70°F (21°C) is at least 130 and wherein said Dynatup Impact toughness rating at –20°F (-29°C) is at least 125.

23. The composition of claim 22 wherein said Dynatup Impact toughness rating at 70°F (21°C) is at least 135 and wherein said Dynatup Impact toughness rating at –20°F (-29°C) is at least 130.

24. The composition of claim 23 wherein said Dynatup Impact toughness rating at –20°F (-29°C) is at least 140.

25. The composition of claim 24 wherein said Dynatup Impact toughness rating at –20°F (-29°C) is at least 150.

26. A thermoplastic polymeric composition comprising an alkylene terephthalate or naphthalate bulk polymer; an effective amount of an additive comprising a substantially amorphous co-polymer of ethylene and an acrylate; and an effective amount of a compatibilizer/emulsifier/surfactant (CES) comprising a grafted or backbone co-polymer or ter-polymer of ethylene and a glycidyl acrylate, maleic anhydride, or mixture thereof, and optionally an acrylate selected from the group consisting of methacrylate, ethylacrylate, propylacrylate, butylacrylate, ethylhexylacrylate, and mixtures thereof;

wherein said bulk polymer, following heat setting, has a final intrinsic viscosity that is at least about 70% of the initial intrinsic viscosity of said bulk polymer.

27. The composition of claim 26 wherein said final intrinsic viscosity is at least about 75% of said initial intrinsic viscosity.

28. The composition of claim 27 wherein said final intrinsic viscosity is at least about 80% of said initial intrinsic viscosity.

29. The composition of claim 28 wherein said final intrinsic viscosity is at least about 85% of said initial intrinsic viscosity.

30. A continuous thermoforming apparatus for preparing a multi-layered article, the apparatus comprising:

means for co-extruding at least two distinct thermoplastic layers through an extrusion die to form a co-extrudate in a substantially non-oriented state; and

a rotating wheel having at least one thermoforming member, said at least one thermoforming member comprising:

a mold surface for receiving at least a portion of the co-extrudate;

a stripper plate positioned adjacent to the mold surface;

means for controlling the temperature of said mold surface to maintain the co-extrudate in a thermoformable state, wherein at least a portion of said mold surface is maintained at a first temperature; and

means for controlling the temperature of said stripper plate to maintain the stripper plate at a second temperature, wherein said second temperature is not equal to said first temperature.

31. The apparatus of claim 30 wherein the difference between said first temperature and said second temperature is from about 1°C to about 100°C.

32. The apparatus of claim 31 wherein the difference between said first temperature and said second temperature is from about 5°C to about 68°C.

33. The apparatus of claim 32 wherein said second temperature is lower than said first temperature.

34. A continuous thermoforming apparatus for preparing a multi-layered thermoformed article, the apparatus comprising:

means for co-extruding at least two distinct thermoplastic layers through an extrusion die to form a co-extrudate in a substantially non-oriented state; and

a rotating wheel having an axis and at least one thermoforming member, said at least one thermoforming member comprising:

a dynamic upper mold cavity for receiving at least a portion of the co-extrudate;

a static lower stripper plate adjacent to said mold cavity;

means for controlling the temperature of said mold cavity to maintain the co-extrudate in a thermoformable state at a predetermined temperature or in a predetermined temperature gradient; and

means for selectively displacing said dynamic upper mold cavity toward the axis of said rotating wheel to separate the thermoformed article from said mold cavity.

35. The apparatus of claim 34 wherein the temperature of at least a portion of said mold cavity is controlled by means for controlling the temperature of said stripper plate.

36. The apparatus of claim 35 wherein said means for controlling the temperature of said stripper plate comprises cooling means for maintaining said stripper plate at a temperature lower than a temperature of said mold cavity.